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SL-11 MC-1290/1
Time : 01:05 CBT 25:06:03. GMT
6/21/73
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This is Skylab Control
                     Good morning.
  6 hours 6 minutes Greenwich mean time on the 28th day
                                     Skylab is coming up
of the first manned Skylab mission.
within range of the Hawaii tracking station now, and CAP
COMM Dr. Bill Thoraton will be putting in a wakeup call to
the crew. This will be a busy day. The er ire day will
be devoted to deactivation of the Saturn w :kshop.
                                            or 7 minutes.
                                        AOS
                     Skylab, Rouston.
      CC
                     Good morning, Houston.
      SPT
                     Did anybody ever answer you this morning,
      COR
B111?
                     Hello, Houston.
      CDR
                     Go ahead, Skylab.
      CC
                     We just wondered if anybody answered
      CDR
you this morning.
                      That's affirm.
      CC
                      Okay. We were having a big discussion,
      CDR
and you came in, and when the discussion was over, we said,
"Did we over answer that?"
                      Pete, they've even got a little song
for you down here this morning.
                      They do? Well, play it.
       CDR
                      This is Skylab Control. That boutswain's
       PAO
pipe call - -
                      Skylab.
       SPT
                      Go, Skylab.
       CC
                      Okay, the medical status report asks
       SPT
 for me to voice record on some OGI data on the PLT. I've
 done that twice. And the data no longer exists up here
 bucause we crased our cue cards. I think they ought to
 search channel B again.
                      We copy, Joe.
       CC
                      And, Joe, we appreclate your patience on
       CC
 this channel 5 stuff.
                      Okay.
       SPT
       (Music)
                      You should have started doing that on
       CDR
 about day 2.
                      For some reason they thought that that might
 be appropriate for you, Pete. I don't know who thought it
                       The title of that number is "The Lonely
        And the boatswain's pipe call that was sent up or lier
  is Paul Hand's.
                       And, Skylab; we'll be LOS in I minute.
  Goldstone at 06:18.
```

Ok ay .

SPT

11-12 NG-1290/2 71mai Olios CDT 24(06:05 GRT //21/73

And the erew down here couldn't find a conf for, three bulls, it was only one.

CDE Pere's a little old song, love.

PAO This is Skylab Control at 6 hours 16 minutes Greenwich mean time. Hawaii has 10% of signal; Goldstone will acquire in junt under 2 minutes. That last song coming down from Skylab was out of Pete Conrad's repertoire of country-western music he has aboard. We'll continue to stand by for acquisition at Goldstone.

PT-11 NO-1291/1 | Time: Oli16 CDT, 28:06:16 CMT A/21/74

CC Roger, Houston. We're AOS for 6 minutes CDR Roger, Houston.

CC Skylab, LOS in 1 minute. Bermuda at 29.

This is Skylab Control at 6 hours 26 minutes Greenwich from time. Goldstone has loss of signal. And there'll be about a 2-1/2 minute gap before Bermuda acquires. Skylal now at 't's northernmost ground track, 50 degrees north latitude. We'll continue to stand Ly for Bermuda acquisition.

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THE RESIDENCE OF THE PROPERTY OF THE PROPERTY
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Skylab. Houston. AOS for Zainutes
                  The lagabout 2 minutes into this p
                     No ge go
                     Are you still there, 31117
      CC
                     Say again, Skylab.
      CDR
                     Roger, do we just set our clocks sheed
exactly 4 hours of clock time? Is that right?
      CC
                     (Garble)
      CC
                     Pete, if you set your clock shead 4 hours
at this time we would show you day 38, 10:31. That's day
28.
      CDR
                     Thank you.
      PLT
                     Hello, Houston. You still there?
      CC
                     We're still here. Go shead, Paul.
                     Okay, I'm just wondering. I don't remember
      PL1
sterring up $149 and decetivation before. Did you do that
in the deactivation flight plan, or are y'all going to send
up a message to initiate its (garble)?
      CC
                    Stand by half, Paul.
      PLT
                     Okay.
      CC
                     Paul, you don't need a pad for that.
be commanded from the ground.
                     Oh, okay. So leave it just as it is
POWER OFF and the whole works, huh?
      CC
                     That's affirmative.
      PLT
                     (Carble)
      CC
                     LOS in 1 minute. Canary at 10:38.
Paul, we hate to ask you, but did you do the TO27, SO73 MALF?
                     Well, he did that, but by the time he got
it up S149 was already out in the airlock and - you know -
activated.
      CC
                     We copy.
                     As a matter of fact we had a little dis-
      CDR
cussion about it. We really don't have too much sympathy over that
one because the malf has been in that thing for 8 - 9 days
and it's been cooled and sealed sitting over on a box. You
know - we could have done it anytime.
      CC
                     We copy.
      PAO
                     This is Skylab Control at 6 hours 37 minutes
Greenwich mean time. Skylab is out of range of Bermuda now,
but will be coming up on Canary Islands in about a minute.
There's also overlapping coverage at Madrid and Ascension
island on this pass. We'll continue to stay up.
```

#1-11 mo-1993/1 7 20 06 136, put

CC SPT, Houston. AOS 9 minutes. CC SPT, Houston.

SPT Yes, Houston.

change "esterday of 4 hours was based on your getting up at 7:00 d'clock instead of 6:00 d'clock. Is this adequate for you? There is actually an hour difference.

SPT Right. Let's keep the 4 hours and we're just an hour ahead of the timeline. We will - we won't press on 100 fast ahead because we don't want to wind up, as the PLT younted out, at launch with no water in the wardroom.

C We copy that.

CC LOS in 1 minute. Honeyauckle 11:23.

PLT Roger.

This is Skylab Control at 6 hours 50 minutes Greenwich mean time. We have LOS on Skylab. The next station to acquire will be Honeysuckle, Australia in about 33 minutes. We'll come back up just prior to acquisition there. At 6 hours --

*1-10 MG-2884/1 Time #7 02 120 GDT 28107620 GHT

This 16 Skyleb Control at 7 hours 21 minutes Greenwich mean time. We're standing by for acquistries through the Rossysuckie station.

Skylab, Nouston. AOS 8 minutes.

SPT Roger, Nouston. We'd like to stop and have coffee with you, but the CDR mays we're going on a trip tomorrow, and we have to pack.

CC Press on. Sounds as if the CDR may be getting a bit travel-proud.

SPT What was that Carolina expression, Bill?
CC Oh, that's an old country expression,
getting ready to go to town, travel-proud.

SPT That's what we're doing.

CC Skylab, for information only, we're putting the final patches into the secondary computer. No need to acknowledge.

CC LOS in 1 minute. Hawaii 11:44.

PAU This is Skylab Control at 7 hours 32 minutes Greenwich mean time. Honeysuckle has loss of signal, and Hawaii will acquire Skylab in about 12 minutes. At 7 hours 32 minutes, this is Skylab Control.

0

SL-11-NO41295/1 Time: 02:41 CDT 28:07:41 GHT 6/21/73

This is skylab Control at 7 hours 42 minutes Greenwich mean time. Skylab will be within range of the Rawaii station very shortly. We'll stand by for conversation then.

CDR Houston, CDR.

CC Go CDR.

CDR Tour evening status report minus Delta

is on B channel.

CC We copy.

CDR Houston, CDR.

CC Go CDR.

CDR The SPT is the only one that's bringing back his crew log. The CDR and the PLT did not use them. We will stow them here so the people have extra paper if they want them.

CC We copy that.

CC LOS in one minute. Goldstone 11:56.
PAO This is Skylab Control at 7 hours 53 minutes Greenwich mean time. Hawaii has loss of signal. Goldstone will pick up in slightly more than 2 minutes. We'll continue to stand by for acquisition later.

...Skylab...AOS 6 minutes, Goldaton Skylab. 108 is 1 minute, Bernud This is skylab Control at 8, hours 3 ninutes Greenvich mean time. Goldstone has loss of signal: Skylab is too far north to be acquired by the Texas and Merritt Island stations, however it will be within range of the Bermuda tracking station in about 3 minutes. continue to stand by for acquisition at Reimuda.

81-12/MC-1197/1 Time: 03:58 CDT, 18:08:09 CMT

> CC S7T

Skyleb, Moueton. AOS 10 minetee. Roger, Bill. Skyleb, we're going LOS. Access!

12:23.

PAO This is Skylab Control at 8 hours 17 minutes Greenwich mean time. Bermuda does have loss of signal. Ascension will acquire the spacecraft in about 6 minutes. At 8 hours 17 minutes, this is Skylab Control.

81-17 NC-1298/1 7imo: 03:21 CDT 28:08:21 GHT 6/21/73

This in Skylab Control at 8 hours 21 minutes Greenwich mean time. We're standing by for acquisition throuth the Ascension Island station.

C Skylab, Houston. AOS 10 minutes.

SPT Roger, Houston.

CC Skylab, LOS 1 minute. Carnarvon

12:56.

SPT Okay. See you then.

SPT And, Bill, would you find out for me if

the biomedical checklist gets used on the next mission.

CC Joe, a new checklist will be brought

up on 3.

SPT Okay, thank you.

PAC This is Skylab Control at 8 hours 34 minutes Greenwich mean time. Skylab is beyond range of Ascension now. Next station to acquire will be Carnarvon, Australia in 22 minutes. At 8 hours 34 minutes, this is Skylab Control.

#142200-1109/1 Pime: 03:34 GB2, 20:00:34 BHT ...

This is Skylab Jentrol at Shoure 54 minutes Greenwich mean time. Skylab coming up on acquisition howest the Carmeron, Amstralia station. Here in the control denter, a Change-of-shift will take place very shortly. Thight Director Don Puddy. And the CAP COMM Hank Hertsfield relieving Dr. Bill Thornton. We're estimating the Change-of-shift news conference with Flight Director Don Puddy for 4:30 a.m. central daylight time in the JSC news center. 4:30 a.m. central daylight time for the Change-of-shift news conference. We'll stand by for conversation at Carnarvon.

CC Skylab, Houston. AOS for 9 minutes.

CDR Roger, Houston. I got a question for you.

I want to know if - how long I gotta keep venting 02.

CC Stand by a half, Pete.

CDR Houston, CDR.

CC Go, CDR.

CDR We'd also like to test the command module TV. Do we have permission to do that?

CC Stand by half on that one. And for the oxygen, they want to leave the polychoke hooked up and remove it tomorrow at the checklist time. Pete.

CDR Okay.

CC Pete, we're having some data problems with this pass and they would like for you to do it over the States where they can observe the TV.

CDR Okay. Well, it may not be convenient then but give us a holler.

CDR Hi there, world.

GC We're having a little comm problem. Go ahead, Pete.

CDR (Garble)

CC You're in and out. Say again.

CDR Okay, on panel 5 experiments power Charlie circuit breaker is not mentioned in our book. It's OPEN, and we'd like to know if that's where it's supposed to be.

CC Stand by half, Pete. And be advised we're having some data problems here. We may have drop-outs, both on this station of the comm, and we may have comm problems over Guam.

CDR I can see that on my S-band.

CC Pete, we're supposed to have 4 more minutes here, but in case we lose you, why this is the last time
13 will be up. And everybody has certainly enjoyed it. And --CDR We enjoyed it. We appreciate all your
help.

CC As for myself, it's been pretty wonderful

\$1-11 MC-1299/2 Time: 03:54 CDT, 28:08:54 CHT 8/21/73

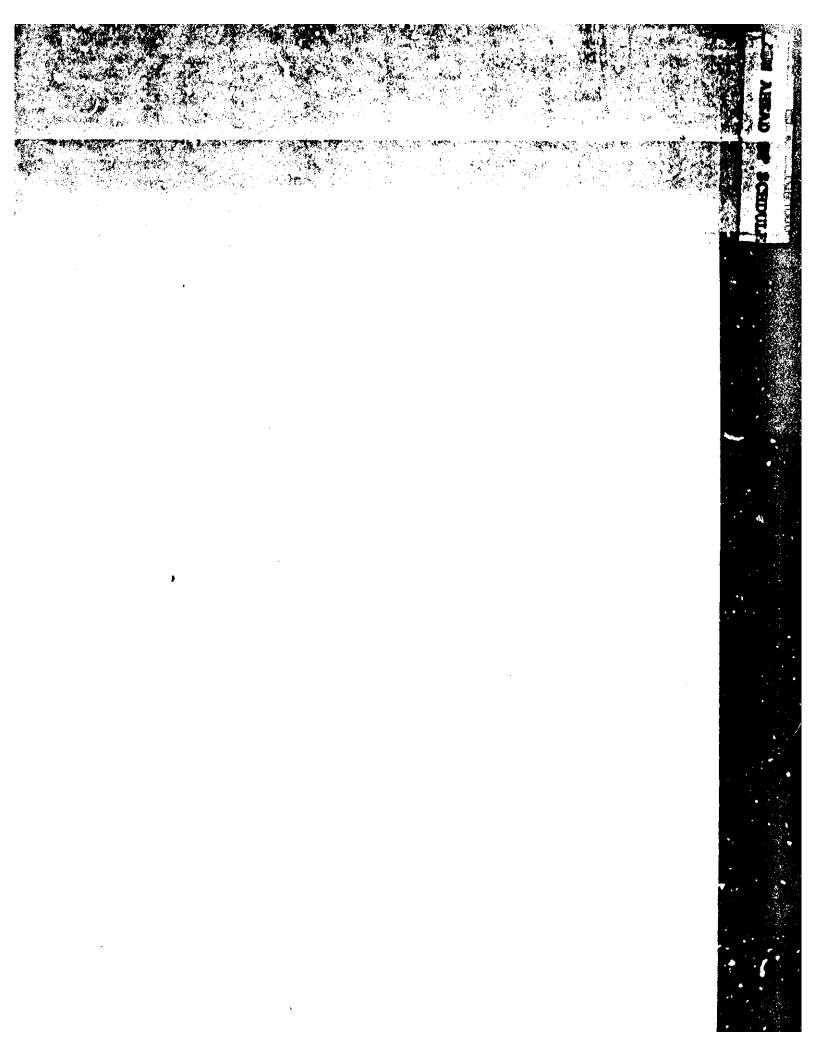
watching what's going on - the next best thing to being there and we'll be looking for you when you get back here, with sugar cookies in both hands.

CDR Okay, Bill. Well, I'll tell you, you were such a nice guy to us and your trem that we went shead this morning and took the mug shots for you.

GC That is well beyond the call of duty.

Thank you, Pate.

CDR You're welcome.



81-11/MG-1306;1 Time: 04103 CBT 28:09;63 cm2 6/21/73;6

CC We're 1 minute until LOS. We'll have you at Gummar 13:11 and we're working the circuit breaker. CDR

This is Skylub Control at ? hours & minutes Greenwich mean time. Carnarvon has loss of signal. Guam will acquire in about 4 to 4-1/2 minutes. Dr. Bill Thornton describes the "mug shote" that he and Skylab Commander Pate Conrad discussed a moment ago as some interior shots of the workshop that he had asked the crew to get if they had a chance. We'll stay up for Guam acquisition.

Co Skylab, Houston. Through Guam for 7-1/2

minutes.

CDR Hi there. How do you read now, Hank?
CC Okay, reading you loud and clear.

CDR Okay, you were a little wobbly there.

We were watching you wobble on our S-band max meter.

CC Roger. In answer to your question, Pete, on the circuit breaker, experiment Charlie on Panel 5, the only thing that was attached to that thing is 5015, which, as you recall, was a late casualty.

CDR Yeah, we couldn't find anything in this quic - we're doing this quiescent switch configuration and we couldn't find any mention of it, and we didn't know whether it was supposed to be out or in when we came across it. We'll leave it out.

CC Okay, and it looks like you're pretty far shead of schedule here. What are the other two fellows Joing now, or do you know?

CDR We're having a poker game in the command module right now. All three of us.

CC Roger.

CDR And so by the way, we're all suited, and we're ready to go, if you got a pad.

CC You're going to have to hold off, we only got a 4-foot trench down there now.

CDR You got a select what?

CC Trench.
CDR Okay.

Henry. There is no doubt in my mind that we got things pretty well handled here, and therefore with your permission all the triangled items in my checklist for day 29 which signify that I can bring up on day 28 I intend to do after dinner. Which is, I believe, power up the G&N.

CC Roger. Copy.

CDR Yes, sir. Let me read themto you, Henry.

RC-IT MC-1300/2 Time: 04:03 CD2 16:09:03 GHT

GAN SCS power up, SPS/RCS quiescent termination, E memoratume, CSF caution and warning check, RCS prep, RMS entry check, and I will complete those tonight after dinner.

CC Roger. We copy.

CDR Hey, Henry. Are you there?

CC Roger. You got about 3-1/2 minutes,

Pete.

CC Okay, how about looking at the batt relay bus? We show it reading low here. We show 3.0, and the numbers say 3.4 to something higher.

CC Okay, we'll check it.

CDR Thank you.

11-11-101/1-Time: 04:16 GP2 26:09:26 GH7 6/21/73

CC Petw, our telemetry is showing 26.4 on that hus. It looks good to us.

CDR Okay, our meter sust be reading low.
SPT And the nominal says 30 to 37.

CDR The PLT says he understands and he's

going to explain it to us dummys.

CDR Okay, we understand it now, why we

are reading low.

CC Okay.

CC Skylab, Houston. One minute til LOS,

Goldstone at 35.

CDR Roger.

This is PAO Skylab Control at 9 hours 20 minutes Greenwich mean time. Guam has loss of signal. Goldstone will acquire in about 15 minutes. The crew is running well ahead of schedule on deactivation. They appear to be 2 to 2-1/2 hours ahead of the flight plan schedule. However they may have skipped over some tasks that they will return to. We intend to query them in a little more detail at Goldstone as to precisely where they are, but it's obvious that they're about 2 hours ahead, or as Pete Conrad put it, "we're all suited and ready to go, if someone can send us a pad." Their reference to the 4 foot trench is not all of the flight controllers required for reentry are in here at present time, so we're not ready even though the crew might be, is what the CAP COMM was telling him. Flight Director Don Puddy has left the Control Center, in route to the News Center, for his news conference scheduled for 4:30 . m. central daylight time. If that conference is still underway when we have acquisition at Goldstone, we'll tape and play that tape back at the earliest oppor unity. At 9 hours 22 minutes Greenwich mean time, this is Skylab Control.

SL-II HC-130?/1 Time: 04:41 CDT, 28:09:41 CHT? 6/21/73

and the second PAO This is Skylab Control at 9 hours Al min-Greenwich mean time and we're back live on air to ground. SPT Hank, you still there. CC Roger. Go shead. CC Okay. We just had a handover. transmit right then? SPT Oh. okay. You read all right now? CC Roger. SPT Hey, if you'll pass - I know something that always came up in the timelining people and if you'll pass to Al Bean and - I start at the forward end of the MDA. went at a rate of travel that's typical of moving with a fairly massive objective such as a drawer full of \$190 magazines and from the (garble) to the MDA down to the big hole in the workshop grid took me right at 1 minute. I turned around and came back at - by myself in what has come to be I think a moderately fast but also typical rate of movement of a unhindered man and the same distance in about 20 seconds. Okay. Understand from forward MDA to the experiment compartment? Is that where you went to? Well, the forward - the grid of the experiment compartment - the big hexagonal hole in the grid floor. Okay. That took you about a minute with a load; coming back, about 20 seconds. SPT Yes, sir. CDR Has anybody seen my rubber ducky? CDR No, I found it. CDR Still there, Houston? CC That ~ That's affirmative. CDR Don't let that out about the SPT will We've been trying to keep that quiet for the last you? 28 days. CC He really took one with him, huh? CDR You bet you. CC Skylab, Houston. We're about 1 minute Ascension at 03. (Music) CDR You know, it's just like the day before Christmas up here, Hank. We're having our farewell party with all the office staff and everything before we leave. It sounds like a ball. You know, you've CC got to realize it's only 5 in the morning down here. (Laughter) Well, we're getting ready to cat lunch here in a minute.

PAO This is Skylab Control at 9 hours 54 minutes Greenwich mean time. Bermuda has loss of signal. Ascension SL-11 MG-1302/2 Time: 04:41 CDT, 28:09:41 GMT 6/21/73

PAO will acquirt in about 8-1/2 minutes.
The crew indeed is two hours - slightly over two hours shead on the time line - -

8L-11 MC-1503/1 Time: 04:54 CDT, 28:09:54 GMT 6/21/78

- the crew indeed is 2 hours - slightly over 2 hours ahead on the timeline. They are getting ready to have lunch. The command module television was checked out over the Goldstone station. That transmission was recorded at Goldstone and will be sent back here later. don't have a t'me yet for the return of that television. We have about 3 minutes wort! of tape we accumulated during the Change-of-shift briefing. We'll play that for you now. CC We're stateside for about 20 minutes. CDR Okay, we'd like to check out the CSM TV. CC Okay, go ahead. CDR Okay. We've got it at CSM TV DOORS and on S-BAND and TV and nothing's running. Do we go to COMMAND RESET?

CDR You guys did it. Okav, thanks.
CDR Okay. Henry, are you going to get a picture down there?

CC We'll be recording to at Goldstone, Pete. CDR Okay. Well let us know if it's - I cleaned this lens up. We had a lot of complaint about that other lens and I found it had internal dirt in it which I could see. And I have replaced the lens with the other lens and want to know if we got a good lens.

CC Okay.

CDR, Houston. Since you were in the class at 6:10, may we assume that you've accomplished everything prior to that?

CDR You can bet your sweet bippy baby.
CC You guys are really moving ahead
CDR We got up early this moring.

CC Okay. We're getting the video signal at Goldstone now and we're recording it.

CDR We're redoing re-entry procedures and I assume from the entry-minus-6-day check pads that I have that I can go through there and change all my girbal trims and everything to what you had on those pads because they ought to be fairly close. An example in the book was pitch was plus 1.44 and plus 0.33, and the pad I had the other day was plus 0.057 and minus 0.11 and I assume those are correct.

Okay, those trims are probably not good,
Pete. We'll be uplinking you some new healises tonight on
the preliminary pads.

CDR Yeah, but they can't be too far off, though.
CDR Six days, all we've done is throw away
a little oxygen - couple other (Garble)

CC Okav, the stowage is not reflected in those trims.

013404134 CDT

CDR Oh, the minus 6 day summary stuff reads just like there are minus 6 days, huh?

CC That's affirmative. CDR

Oh, sneaky. CDR I knew I couldn't get ahead - that there

ras no way.

Well, we're done with the TV, and if you CDR guys want to command it OFP, go ahead.

Okay, we'll turn the downlink OFF and

you can get the camera.

CDR Okay. PLT

Hank, I gotta go to COMMAND RESET to turn that OFF to enable that switch. Do they really want me to

CÇ Stand by 1. CC

COMMAND RESET's okay, Paul. PAO

This is Skylab Control at 9 hours 58 min-That's the end of the tape recorded during Change-ofshift briefing. The rubber-ducky routine just before Bermuda LO; was courtesy of Science Pilot, Dr. Joe Kerwin. We're 3 minutes away from acquisition at Ascension. We'll continue to stay up live until we acquire at Ascension.

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SL-11 NO-1304/1
Time: 03:00 CDT 28/10:00 CMT
6/21/73
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Skylab, Rouston. Through Assess CDR COR Gosh, Hank, you got a RREP slider update for us? Okay, see if I can get you one. you in the wardroom now? CDR Yes, sir. I wonder if we could get one of you to CC slip over to panel 617 there and get experiment 1 and 2 recorders to Charlie on the rotary switch. CDR Okay. CDR You want them ON or just on Charlie? CC We just want the two rotary switches on Charlie so we can look at some data from the - from the experiment there in the SAL. CDR Okay. CDR When do you activate 149? While we're here, or after we leave? Okay. We're going to do a checkout on it today, and then we'll turn it on just before you leave tomorrow. CDR Are you actually going to open the doors? CC That's affirmative. CDR Let me know cause I can watch it. can see it from the window. CC Okay. We've got some time, you know. If you CDR got a problem with that thing, we can probably pull it in for you and troubleshoot it, if you want to check it out real early. CC Okay, we'll let you know what happens. CC CDR, Houston. Carlos says that the previous team has already checked out the doors. What we're going to do is put the power on it and see if we got the same problem that we had with TO27. What we are going to do is look at the shaft and trunnton. CDR Okay. You gonna drive it up and down? Well, it shouldn't drive, we hope. CC We want to - if we got that same sticking relay kind of thing, it might drive and, that's what we're afraid of. We want to take a look at it and see what it does. CDR (garble) CC We're gonna probably do that at Okay. Carnarvon then, Pete. We're about I minute to LOS and Carnarvon will be coming up at 34. (music)

Pete, I can hear you keying, read you.

I said, "Are we going to be in the CDR dark in Carnarvon, and also what's our Beta angle today?" Okay. Our Beta's up to 69 degrees, and CC we're only down to about a couple of minutes of daylight, in fact, on about 3 revs - a couple of minutes of night about 3 revs from now, we'll be all daylight.

CDR (garble) crazy.

CC You can probably tell the berth's getting a little warmer too.

CDR Oh, that's gonna go with us (garble). PAO This is Skylab Control at 10 hours 9 minutes Greenwich mean time. The television from the Command service module camera checkout is coming in now from the Goldstone station. Skylab has had loss of signal through Ascension. Next station to acquire is Carnarvon, Australia in 24 minutes. The crew is having lunch, running about 2 hours or a little over 2 hours ahead of the Flight Plan. The 149 that was being discussed by CAP COMM Hank Hartsfield and Skylab Commander Pete Conrad is the S149 particle collection experiment. That's the experiment to determine the mass distribution, composition, and morphology of micrometeorites in near Earth space. That experiment is deployed through the anti solar scientific airlock. It will be left there

through the unmanned portion of the mission. Can be operated from the ground. We'll come back up just prior to Carnarvon.

At 10 hours 10 minutes, this is Skylab Control.

61-22-26-1305/1 Time : 63-31 CDT, 28:10:31 CMT 6/21771

This is Skylab Control at 10 hours in sixual at 10 hours in sixual Greenwich mean time. Skylab coming up within range of the Carnarvon station, and we'll stand by.

CC Skylab, Houston, through Carnarvon 8-1/2

minutes.

CC Skylab Houston, how do you read?
PLT You're loud and clear, Houston.

CC Roger.

CLR Go shead, Houston. Do you want to run this

140 on.

CC Okay, we'll be ready for that in just a minute, Pete. I'd like to chat with you a second about your plan for the early CSM checks.

CDR Go ahead.

CC Okay, the way we see it is fine to do the SPS RCS quiescent termination. In our opinion the G&N and the STS power up doesn't really gain us a lot. For one thing we don't have our rest mat ready in time, and we've got to get the clock synculd up for you and get the time squared away. The alignment sequence tomorrow would be changed to do a P52 option 3 first, and then a P52 option 1 and so on - the time line. The caution and warnings checks, we wouldn't want to do today because of the SPS pressurization which we've got scheduled to do first thing tomorrow morning. And the ECS prep wouldn't be desirable because of the secondary coolant loop and cryo changes. And if you do the EMS check, we still want you to do it again tomorrow. kind of a bed picture all the way around. The crews that are supporting this - we've got to turn them right around to support the entry tomorrow, and it really puts us in a bind. we got a site coverage problem this afternoon. We' get into that - Vanguard, Hawaii, back and forth deal with the long LOSs.

CDR What the hell did anybody ever put them in the book and do it early for anyhow then?

CC Well, you see the reason we're in this bind, Pete, is that we're in sort of a non nominal situation. We had the - it would have worked normally. However, we're in a situation such that we've got some cryo and coolant loop problems and the STS pressurization, which are not nominal. And they affect some of the checks that you want to do.

CDR Could be a typical jet flight take off and invert with EV, but when you get to the end, look out. Okay. We'll sit up here and twiddle our thumbs and wait for you.

CDR I've got lots of music to keep me happy.

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81-11.80-1305/2
Time: 05:31 CDT/ 28:10:31 GHT
6/21/73
Now, about give him nome
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out give him nomething to do. I've got one question. Can you stomp your foot up there in zero g as easy as you can in 1 g? You bet your sweet bippy, and you can CDR also go Ah haa. .PLT You can only stomp it once. CC Roger. CDR (garble) CDR Say Hank, would you do me a favor? CC Roger, go sheud. CDR Would you ask old Rod tble) to pass to Bill Bailey my thanks and ask him to pass on to G. D. Pruitt, Loretta Lynn, and Danny Davis fom T. Hall, Conway Twitty, Nat Stuckey, and Bill Andrerson my thanks for all the personal tapes and nice little messages they sent because it's - you laugh at my country music, but I really enjoyed it for the 28 days. And I appreciate the extra effort those people did on my behalf.

CC Roger. Will do. CDR Thank you, sir.

Time: 05417cpt, 20:10/61 cut 6/21/70

cc cd, Houston. Corollary has all ready turned the power on to \$149 and the cked it out. We didn't see any movement in the shaft and trunnion, so I guess all the indications are horsal. He'd rather not open the doors at this time, so it appears to be in normal condition.

CC Skylab, Houston. One minute to LOS.

Guam will be coming up at 47.

PLT Roger. Houston, may we power a couple of fecal dryers today?

CC That's affirmative.

CDR Okay.

PAO This is Skylab Control, at 10 hours 44 minutes Greenwich mean time. Carnarvon's had loss of signal. Guam will acquire in just under 3 minutes, we'll continue to stand by. During this pass over Carnarvon, Pete Conrad passed down his appreciation to a number of country and western music stars who have provided the music for him during the Skylab mission. Also, from what he said they apparently had some personal messages to him on the tapes that he had with him.

SL-T1/NO-1307/1 Time: 05:46 cD7, 18:10:46 cm7

Skylebi loueton; through Guan los

SC Roger

CC Skylab, Houston. We're about 1 minute to LOS; Goldstone at 1-2. And we just sent you a messave up, should be in the teleprinter now, and you can accomplish, as convenient.

SC Okay.

7/0 This is Skylab Control at 10 hours
57 minutes Greenwich mean time. Skylab out of range now,
at Guam. Goldstone will acquire the spacecraft in about
14 minutes. The crew well shead of their deact: vation
timeline. At 10 hours 58 minutes Greenwich mean time, this
is Skylab Control.

ST-II MCL308/1 TEME: Gerla CDT; 28:11:12 CMT 6/21/734:3

PAO This is Skylab Control at 11 hours 10 minutes Greenwich mean time. We're standing by for acquisition through Goldstone.

CC Skylab, Houston. Stateside for about 16 minutes and we'll be dumping the recorder over Mila at about 20.

PLT Okay.

CC Skylab, Houston. 7 wonder if ic would be convenient to give us an update on where you are in the checklist hare in the next couple of minutes?

PLT Well, we're all in a hold awaiting lunch.

CDE And We don't want to close down waste management and Wardroom Chil be time. (garble) hold them until lunche

C Roger.

CC Have you picked up some of the items that are scheduled after lunch?

CDR No, not really. You've got me convinced that we'to wasting our time getting shead.

CC Well, we didn't really mean to do that. We were - thought you were shooting to get to bed early tonight to get a few more winks.

CDR We'll make that, Hank.

PLT Rey, Henry, the PLT is holding for lunch except I have all ready replaced the solids trap and the charcoal canisters.

CC Roger, copy.

PLT And I'm not planning on starting to shut down the water system until after the evening meal.

CC Roger, understand.

PLT Henry, have you got a minute.

CC Ruger, goahead.

PLT If you will look at the deactivation checklist, and look at the flight plan on page Charlie, please.

CC Okay.

PLT Okay, in my column is a time-critical function to turn on the wardroom dump heater, but I can't find out why I'm turning it on.

CC Okay, that's for - in preparation for the wardroom water system deactivation, which comes after dinner. And we're about 30 seconds from LOS. We'll be coming up on - we'll be coming up on Vanguard at 38.

PLT Well, that's what I figured, but I didn't see any reason to turn it on that early, so I moved it on down to an appropriate time Ihad t hem dumping any water.

CC Okay, that's all right.

This is Skylab Control at 11 hours 30 minutes Greenwich mean time. Skylab out of range of the Merritt Island, Florida, station. The tracking ship Vanguard will aquire Skylab in about 8 minutes. At 11 hours 30 minutes Greenwich mean time, this is Skylab Control.

8L-11 NC-1310/1 Time: Q6:36 CDT, 28:11/36 CRT 6/21/73

THE PROPERTY OF A PARTY OF A PART

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This is Skyled Control at 11 hours
37 minites Greenvich mean time. Styleb coming up on the
Vanguard Tracking Ship, nov. We'lk stand by.
      CC
                     Skylab, Houstam; through Vanguard
6-1/2 minutes.
      SC
                     Roger. Houston, what's GMT at splashdown
tomorrow?
      CC
                     Rog. I think it's 13:56 but I'll check
it out.
      SC
                     Okay.
      CC
                     Okay.
                            Splash is at 13:50.
      SC
                     Sounds like we missed 28 days by 10 minutes,
huh?
                     That's about it.
      CC
      CC
                     Maybe you could hold at 10 000 on the
way down.
      S C
                     Okay.
      CC
                     We just got some interesting data in here,
      The recovery ship's crew have been practicing out there.
And they simulated a splash 4-1'2 miles from the carrier.
And the time from splash to hatch opening on the deck was
33 minutes.
      SC
                     Yay!
      SC
                     Fantastic.
                                 And we hope beat 4-1/2 miles.
      CDR
                     Hey, Hank, CDR.
      CC
                     Go ahead.
      CDR
                     Roger. Le' me pass you (garble) status
report Delta for the CDR.
      CC
                     Go ahead.
      CDR
                     2/25/3300/05/0300.
                                          That's the last one.
      CC
                      Roger.
                              Copy.
                     Skylab, if it's convenient for one of you.
we'd sure love to get the star tracker up.
      CDR
                     Well, it's not convenient, but we've
ordered Joe to go do it.
      CC
                      Roger.
                             (Chuckle)
      CC
                      And while you're up there, Joe, would
you get us a readout on the $052 frame counter?
                      SO52 FRAMES REMAINING at 7871.
      SPT
      СC
                      Roger.
                            Copy. 7-8-7-1.
                     And, Skylab, we're about 1 minute from
LOS.
      Goldstone will be coming up in a little over an hour
at 49.
      SC
                      Roger. And you've got the star.
      CC
                      All right, thank you.
```

%L-11/NC-1319/2 Time: 06:36 CDT, 28:11:36 CHT 6/21/73

This is Skylab Control at 11 hours is shinutes Greenwich mean time. Vanguard has loss of signal on Skylab. It'll be a long LOS here, now. He more stations until we get to Goldstone on this ground track. That's 1 hour and 2 minutes from now. At 11 hours 46 minutes Greenwich mean time, this is Skylab Control.

SL-11 MC1311/1 Time: 07:46 CDT, 28:12:46 CMT 6/21/73

This is Skylab Control at 12 hours 46 minutes Greenwich mean time. Skylab coming up within range of the Goldstone, California station. We'll stand by.

CC Skylab, Houston. Stateside for 12-1/2

minutes.

CDR Roger.

CC And Skylab, the first time it's convenient we need to get the MCC inhibit. In fact, I guess we need it pretty quick because we're trying to get a load up.

CDR Okay, Houston. We got some bad news for you. We were jettisoning the charcoal canisters through the airlock for the procedures and it has hung itself in the trash airlock and in going back and looking at another one I have the sneaking suspicion that the lip on the charcoal canister, the little flat I-beam type thing that's welded on the side of it has slipped over the lip below the track guards, and, man it's really hung in there. We're working the problem but I doubt - it'll be pure luck if we bounce it off that lip and get it out of there.

CC Roger. We copy.

CDR I guess I should have looked at that thing closer but I think it was poor headwork for us to ever assume that we should put that thing through the airlock.

CC CDR, Houston. Wonder if you could give us a exact description of the configuration. Was it - was the canister in a bag, trash bag,? Or just give us a description of what happened, how'd you put it in. Story here wants to go over to the 1G trainer and see if we can come up with something that might help you out.

for - from mol sieve in a bag with four EV gloves. The two gloves were on either side with the fingers down so that the red pring was up above the canister and two more lay crossways on top of the canister.

CC Okay, understand you had four EV gloves and was - two of them with their fingers down beside the canister the ring over the top, and then the other two gloves laying on top of the canister all in a bag. Is that correct?

CDR That's right. All in a disposal bag.

CC Disposal bag, roger.

CDR And it went just about halfway I'd estimate You still there, Hank?

CC Roger.

CDR Okay, when you lift up the eject lever, the handle that the - handle you pull on is about 3 inches above

81-IX MG1311/8 Time: 07:46 CDT, 28:12:46 GMT 6/21/73

che_lid.
CC
Roger: We copy.
CDR
And on the ejection stroke it moved very
secothly until it just all of a sudden abruptly stopped.

SL-11 NO-1312/1 Time: 07:36 CDT, 28:12:56 GM 6/21/73

CC Skylab, Houston. Have you done anything in waste mal number 3 yet?

Regative.

Okey, that seems to be the one that is appropriate. In the meantime Story is on his way over to the trainer to try to duplicate what you did, and see what he can find out.

CDR Okay. Well, there is an iron lip, - steel lip welded on the side of that thing, a break. And I've got the feeling that when it got to the very bottom of the trash airlock inner skirt, it popped through and it's resting on the ledge that the outer seal goes on.

CC Roger.

CC Skylab, we're 1 minute from LOS. Vanguard will be coming up at 15 with a recorder dump.

This is Skylab Control at 13 hours 4 minutes Greenwich mean time. Skylab has completed this pass over the United States and is now out of range of the Texas tracking station. The Vanguard tracking ship will acquire in about 10 minutes. Another problem has cropped up here. The charcoal canister, from the workshop's filtering system was changed out during the deactivation sequence. The canister appears to be - not only appears to be, it is hung up in the trash sirlock outer hatch. The crew is working trying to free it. And here on the ground, back up Science Pilot, Story Musgrave, who was in the control center here on the Capcom console when the word came down on this problem is preparing to go over to the trainer, the workshop trainer, in the simulated area here at the Johnson Space Center duplicate the problem and see if he can work out a system here on the ground to aid the crew. In the meantime, the crew will continue trying to free the canister which is in a regular disposal bag along with 4 EVA gloves. We'll come back up just prior to Vanguard acquisition. At 13 hours 6 minutes Greenwich mean time, this is Skylab Control.

86-11 MC-1313/1 T(m): 08:12 CDT, 28:13:12 GMT 6/21/73 #

This is Skylab Control at 13 hours
12 minutes Greenwich mean time. Skylab coming up on acquisition
at the Vanguard. We'll perhaps get some more information on
the airlock problem, trash airlock problem. One of the
charcoal canisters is hung up in the outer hatch of the
trash airlock, blocking the airlock. The implications of
this problem are being studied here on the ground. And as
soon as we have information concerning what the implications
might be, we'll pass them on. We'll stand by for acquisition.

CC Skylab, Houston; through Vanguard

7-1/2 minutes.

SC Roger, Houston. On that waste valve 3. CC Roger. I don't think was much help, was

1 t?

SC Well, we went from block 1 to block 2, to block 6.

CC Roger. That's the way we looked at it after we got it out. That didn't seem to be much help.

SC Yeah. That's right. So having wound up there and ah - we started working on it a little more. And wherever it jammed, it must have been forcibly in the lip on the side, and the (garble) And by judicious application of muscle, we did manage to get it up and free, so the trash airlock is operative one more time.

CC Boy, is that ever good news. You can hear the sighs of relief down here.

SC They were nothing compared to the sighs here, man. I'll tell you what we did on the next one, and what we recommend for the other troops is those charcoal canisters, there's really no need to put them in a bag, we see. We just took the canister, laid a - smoothed in all the sharp protrusions of great length, and gently injected into the trash airlock by itself with its great big bag. There's no bag.

CC Roger. That sounded like a good plan.
CC There's nothing else with it, either.
That's the best plan, to just put it through by itself.

SC Hey, Houston.

CC Go ahead.

SC In the process of getting this thing lose, since there are rather angular corners all over these canisters, we did put a few nicks and gouges both on the bottom of the ejecter plate, that's the elephant part there. And also in the sides — in the wall. And there just — you know, it's kind of ragged. I don't think it's going to present any problem operationally. But if the next group wanted to dress it up a little bit, they would have to bring some coarse emery cloth or a file of the right shape or something up to — better just dress up some of that gouged metal.

SL-11 MC-1313/2 Time: 08:12 CDT; 28:13:12 CMT** 6/21/73

We copy. CDR - photographs of it, Hank, and bring it back, and you can make up your mind. That's a good show. CC Okay. CC Skylab, Houston. We're having the same problem with the star tracker today we had yesterday. We can't keep it locked up. So at your convenience, we'd just like to go shead and close the shutter on it, and then we'll bring her up again tonight, when we've got more station coverage. CDR What are you going to do when you don't have us to run that thing for you? CC I guess we'll just turn it off. CDR Why don't we do that now? CC What we're really after, Pete, is trying to get a good hack on the Z-gyros before you leave. That's the reason we've been working with it. SC Okay. It's closed. CC Thank you, sir. SC I was just pulling your leg. SC (Garble) - -

SL-11 MC-1314/1 T188: 08:20 CBT, 28:13:20 CHT 6/21/73

CDR Command module is rapidly beginning to look like what it looked like when we left, crowded.

CC Roger. We copy. EGIL sees the waste tank pressure coming up. Are you doing a water purge or dump now?

CDR I think they were doing the squeezer

bag.

CC Roger, copy.

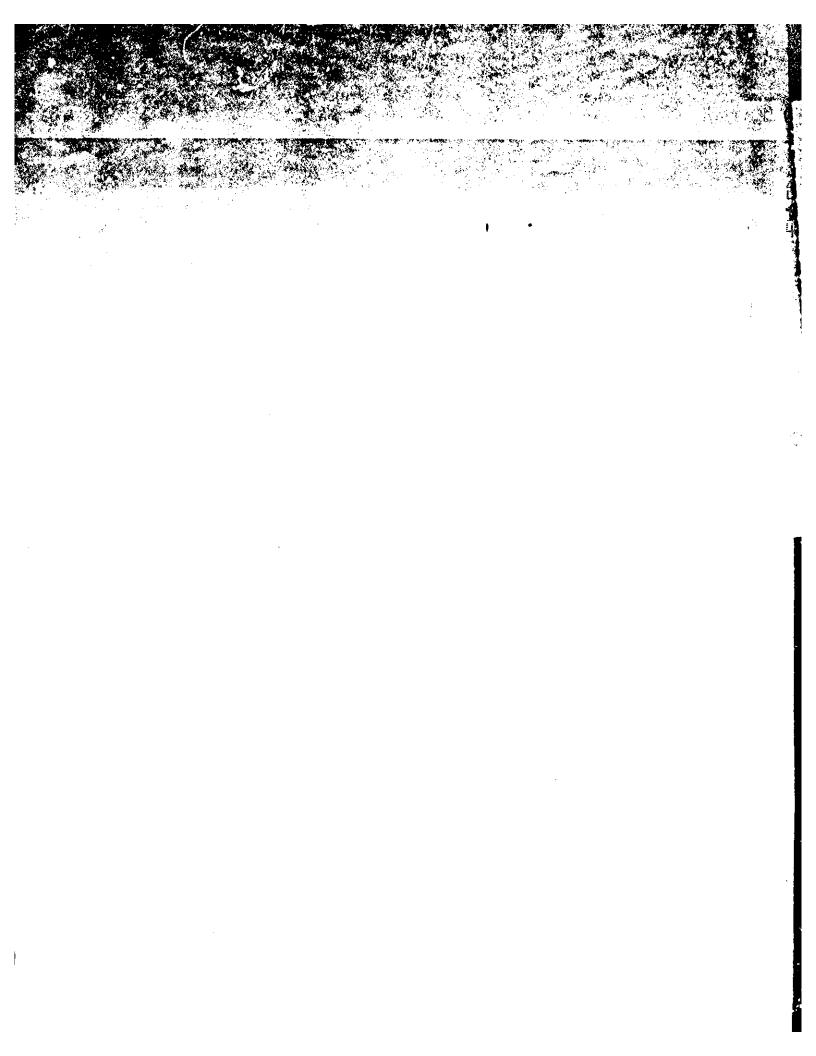
PLT That's complete now.

CC Skylab, Houston. We're about 40 seconds

from LOS. Hawaii at 23.

PLT See you.

This is Skylab Control at 13 hours 23 min-PAO utes Greenwich mean time. Vanguard has loss of signal. We have another long LOS. Skylab will contact no ground stations until it reaches Hawaii I hour from now. As you heard during this pass, the crew which stated "We can fix anything," has lived up to its proclamation again. They succeeded in freeing the trash airlock hatch while Skylab was between the Texas station and Vanguard. That airlock is now free, and can continue to be used. The crew recommended that in future disposals of the charcoal canisters that they be disposed of without being bagged. We'll come back up again prior to recovery, prior to acquisition at Hawaii. At 13 hours 24 minutes Greenwich mean time, this is Skylab Control.



SL-11 MC1315/1 Time: 09:21 CDT, 28:14:21 GMT

This is Skylab Control at 14 hours
21 minutes Greenwich mean time. Skylab coming up on Havaii
now. We'll just barely slice through the acquisition ring
of the Hawaii station. Low elevation, and it'll be a short
pass about 3 minutes. We'll stand by.

CC Skylab, Houston. I guess I don't have to tell you, but I'd take a close look at those urine separators when you put those in the trash airlock.

SC (garble)

PAO This is Skylab Control, 14 hours 29 minutes Greenwich mean time. Hawaii has had loss of signal. The Vanguard will not acquire for 21 minutes. Due to a configuration problem on the console, that Hawaii pass did not get on the PAO release line. It was taped however, just about 1 minute's worth of conversation. We'll play that tape for you now.

CC Skylab, Houston. Through Hawaii for 2 minutes.

CDR Two minutes? It's hardly worth it.

CC Roger. We got a low pass here. We uplinked a catchall message to you at Vanguard, should be in your teleprinter now.

CDR Is that the one with the entry changes that + about the activation change?

CC Roger. We hope that's the last of them; there's a couple of things we omitted last night.

CDR Okay, I got them. I' y're already

programed.

CC And Skylab, for info we had another RM failure in the Y-axis. We're reconfiguring 1 and 3. CC Skylab, Houston. We're about 1 minute

from LOS. We'll be coming up on Vanguard at 51.

PAO This is Skylab Control. That's the end of the tape of the Hawaii pass. We'll come back up just prior to Vanguard acquisition. At 14 hours 31 minutes, this is Skylab Control.

SL-11 MC-1316/1 T1me: 09:46 CDT, 26:14:48 CHT 6/8:171

Pad This is Skyleb Control at 14 hours 48 minutes Greenwich mean time. Skyleb is just about within range of the tracking ship Vanguard. We'll stand by for conversation through that station.

CC Skylab, Houston. Through Vanguard for

9-1/2 minutes.

CC Skylab, Houston. I guess we would recommend that you hold up this evening on dumping those urine separators through the airlock until we look at it a little more closely. Story is on his way to the trainer now, he's going to be looking at how he might get that thing through safely, and also he is going to try to duplicate the problem you had with the charcosl canister.

PLT Roger Houston.

general comment on the messages we sent up last night comcerning circuit breaker configurations. We uplinked you
some asterisks, and some of those might not be correct. I
guess the main (garble) to the mesage should be that the circuit
breaker positions as called for in the diagram and with the changes
that we uplinked and what you want to do regardless of where
the asterisks are. We have (garble) around one place where we
know we are in error. We called for the four heater switches
on panel 200 to have asterisks, and I guess at this time we
noted only one of those is open, so there should be only
one asterisk. And that's on the OWS (garble) heater I and 5.

PLT Okay. I'm going to take a checklist and go up there right now and look at it and make sure I understand it.

SPT

Still there, Rouston?

Townstill there, Houston?

GC That's affirmative.

SC Chay. My only question on these, Hank, then, is on 202. If you'll turn (garble) to SAL control breakers.

CC Rogar.

PLT Okay. It's my understanding that when we leave, you want SAL control breaker 1 OPEN and 2 CLOSED. Is that right?

CC That's right, Paul. That's so we can control the 149. It should be in that configuration, now.

CC Well it's not. They're both closed right now.

CC Okay. I stand corrected. You will be opening number 1. There's an asterisk that's been added there. You will be opening that one.

SC The only thing I didn't figure out how to do was, on SAL control 2, was (static) and delete the asterisk.

CC Takes a good eraser.

SC Yeah.

CC The main thing, I guess, Paul, is that in all cases, I think, that the bars indicate the correct position with the changes that we uplink to you.

SC I understand them all now. Thank you.

CC And if it's possible, Skylab, we'd like to get an update from each of you as to where you are on the checklist, now.

PLT Okay. The PLT is holding on the Flight Plan at the bottom of page Charlie, at urine collection. CC Roger. Copy.

CDR The CDR is at about 19:00 on the timeline. I've done miscellaneous acts, (garble), fecal bundle transfor, and I have just thrown into the trashbag my urine separator. And I'm cleaning all that stuff out, right now.

CC Roger. Copy.

CDR And the SPT is in the same place.
CC Roger. We copy. And we're about 1 minute

to LOS. Vanguard will be coming up at - or Hawaii will be coming up at 59. And shortly, here, in about 35 minutes, at 36:53, you'll have your last sunger for this flight.

SC 36:53, last sunset. Roger.

PAO This is Skylab Control at 15 hours

I minute Greenwich mean time. Skylab out of range of

Vanguard, now. Next station will be Hawaii in 57 minutes.

Crew still well ahead of the timeline in the - e - deactivation sequence. At 15 hours 2 minutes Greenwich mean time, this is Skylab Control.

LDES SEPARATOR WILL NOT FIT THROUGH TRASH AIRLOCK

SU-11 MC1318/1. Time: 10157 CDT, 28:15:57 OMT 6/21/73

X ...

and 4 seconds Greenwich mean time. The warbler has now sounded in Mission Control, indicating that we are approaching an acquisition of signal at the Hawaiian tracking station. The spacecraft is now to the northwest of Hawaii, just about to cross the horizon above Hawaii. We expect to get some additional information on how far the crew is along and completing that deactivation. Earlier the commander indicated that he was running several hours in advance of the time line and might very well complete and get to bed a bit early today. This is Skylab Control, we'll remain live for air-to-ground from Hawaii.

CC Skylab, Houston; to Hawaii, 9 minutes.

CDR Roger, Houston. Be advised all three of us are up to dinner time. Actually, we're running a little ahead of that. We - we're changing out the - closing out the laburing drawer right now.

Roger. Copy, and just to fill you in, Story went over and configured the disposal bag with the configuration you had and it jammed everytime he tried it. And he also is taking a good look at the urine separators and he definitely does not recommend that you try to put those separators down through the trash airlock. We're looking at several things. He's looking to how he might configure them to get them through there. We're also looking at a possibility of, at least for now, stowing the urine separators in the TO27 sampler (garble) container.

CDR Okay, you mean the small one and pull a vacuum on it?

CC Roger.

CDR Okay, be advised that it won't hold the vacuum. I pulled the vacuum on it when I stowed the box the other day and when I went back to open it up and put the dump port on it, why it didn't have any vacuum at all. Either that or the plus-Z airlock vacuum hose is not working. Now, that could be too. I haven't tried to verify that, but I can if you want me to.

GC Hold up on it for right now, Pete. we'll come up with a plan somehow.

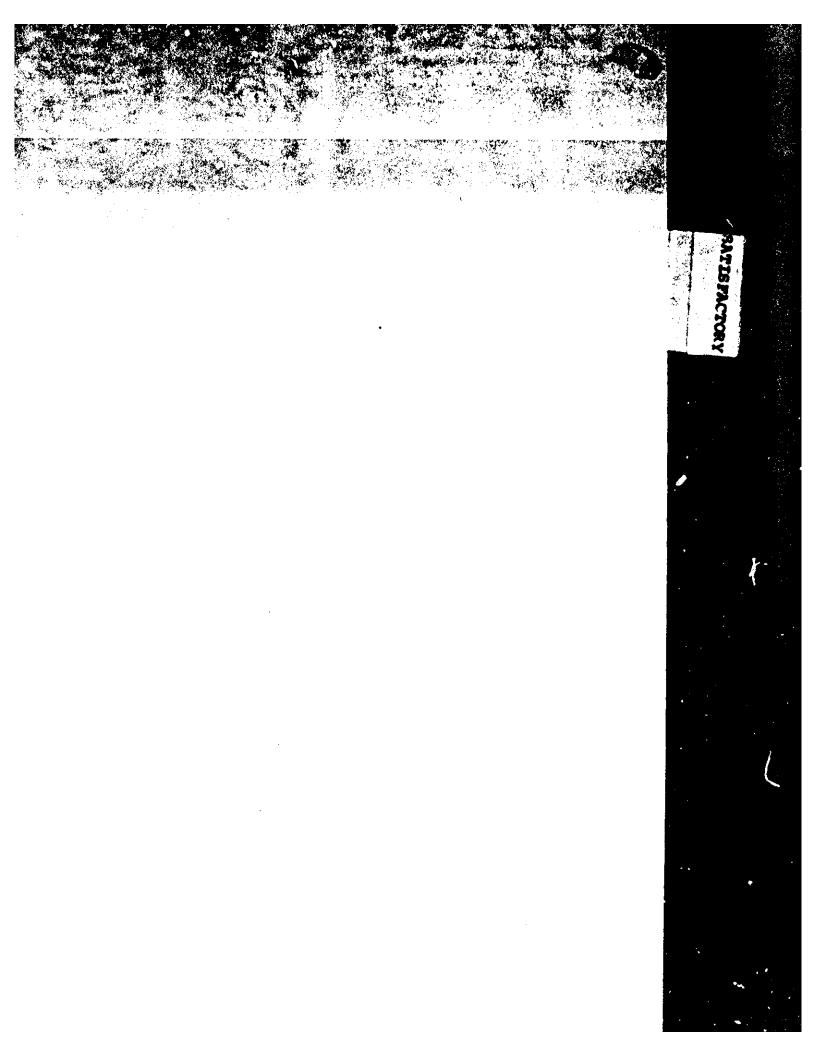
CC Skylab, Houston. One minute to LOS. Vanguard at 30 and there'll be a data recorder dump there.

CDR Okav.

PAO This is Skylab Control at 16 hours 9 minutes Greenwich mean time. We have lost signal at the Hawaiian Island tracking station and do not expect to acquire for another 20 minutes and 26 seconds when we will

8L-11 HC1318/2 Time: 10:57 CDT, 28:13:37 GHT 6/21/75

8/21/79 acquire at Vanguard tracking ship. Appears that the crew is still operating shead of their original time line. Originally it called for them to go to bed about 2:30 p.m. Central daylight time today. It now appears that they may be an hour or so shead of that. That would allow them a longer sleep period than they'd been scheduled for. Originally they were scheduled for a 5-hour sleep period running up until 7:30 p.m. tonight. It now appears that they may be able to get to bed earlier than that. During this last pass they were advised by the ground of the problem that occurred here in the Johnson Space Center training equipment. Musgrave, one of the backup crew, was working with the urine separator trying to dispose of it and discovered that it would not fit through the trash airlock. And they are now working on a solution as to what can be done with that piece of equipment. Suggestion now is that they may use the TO27 box, that's the box that's used in the ATM contamination experiment. They're now evaluating that and reeing whether that can be done. Appears that it would fit in there, and that might be the place ic will be disposed of. There will be a briefing this afternoon at about 3 p.m. by three representatives of industry talking about immediate uses to which the Skylab electronics equipment has - is being put. These are commercial applications already developed of Skylab's electronics. The three specific areas to be discussed television, television camera equipment, the Ampex tape recorder, and SCI Incorporated pipeline control system used in energy production. So, representatives from Westinghouse on television, Aupex on the tape recorder, and SCI on pipeline control systems will be available at 3 p.m. Central daylight time for a briefing in the small briefing room at Johnson Space Center's Building 1. That'll be carried over the release lines following the change of shift briefing. We don't have a definite time yet for change of shift. Original schedule called for a lo'clock break. It now appears Neil Hutchinson's team of flight controllers will not be off until something closer to 2, partly because of this difficulty with disposing of the urine separator and because of some paperwork that they have to clear up here. So we're namedting that change of shift may take place in the neighborhood of o'clock. We'll give you more exact time perhaps an hour er so from now. Next acquisition of signal, a little less than 18 minutes from now at Vanguard tracking ship, and we will come up live again then. This is Skylab Control at 11 minutes and 47 seconds after the hour.



SL-T[NC-[319/2] 21me; 11:27 CD7, 28:16:27 CH7 6/21/75

AF seconds Greenwich mean time. We are just about to acquire signal at the Vanguard tracking ship, and will remain live for air-to-ground from Vanguard.

CC Skylab, Houston; through Vanguard 8-1/2 minutes.

minutes.

Skylab, Houston; Vanguard 8 minutes.

SC Roger.

CDR Hey, Hank. I think that we could wrap those urine separators in a manner so that they can't turn sideways, which seems to be the bad feature, and get them through the airlock, if you want to try that. If not, we're open to whatever you guys want to do.

CC Okay, Pete. Storey's over at the trainer right now, trying to come up with a scheme to get them down and we'd like for you to hold off until we get the results from that.

CDR Okay.

CDR Tell him that my suggestion is, to put two towels and tape them on either side of the flat - on either flat side, so that they can't turn sideways in there. And, just individually one at a time, because the more bundles you get, the worse things get (garble).

Roger. That's exactly what we're looking at, is trying to tape the towels to it and see how we can package it up so it won't hang up.

CC Skylab, Houston. We're approaching LOS. Hawaii will be coming up at 37, an hour from now.

SC Okav.

PAO This is Skylab Control at 16 hours 39 minutes and 23 seconds Greenwich mean time. We have lost signal at the Vanguard tracking ship, as the spacecraft passed over the eastern horizon in the south Atlantic Ocean. At the present time we're 57-1/2 minutes from acquisition of signalat Hawaii. That's nearly an hour from now. And at that time, we should get some additional information up to the crew on the status of our urine separator dump procedure. It was discovered this morning, in the trainer at Johnson Space Center, that it's not possible to put the urine separator directly through the trash airlock. This apparently, was not discovered earlier. And they're now considering other ways of getting it through that area. The problem is, that the urine separator which cas never dumped during the training periods does not fit directly through it. It tends to turn in the trash airlock and for that reason catches, and they can't dump it. So, they are now looking at ways of keeping it from making that turn. Suggestion came down from the crew to wrap it in towel - tape towels to it. Another possibility is using some sort of a

81-11 MC1919/M Time: 11:27 CDT, 18:16:27 CHT 8/21/72

box to put it it. We have the weather forcest for the landing of the space station, tomorrow morning, at just before 8:50 a.m. central daylight time. That weather forecast, prepared by the space flight meteorology group of the National Weather Service, said this morning that weather conditions for the landing and recovery of the Skylab Astronauts on Friday will be satisfactory. Although skies are typically cloudy in the landing area, located approximately 830 miles southwest of San Diego, California, the clouds will have little vertical extent, and so even though television coverage of the descending spacecraft may be interrupted, the clouds will present no danger to the crew. Winds are expected to be from the northeast at about 12 knots, seas at about 4 feet, and the temperature near 67 degrees. That report from the space flight meteorology group of the National Weather Service, a branch of the National Oceanic and Atmospheric Administration. After further temperature analysis of temperature data, thermal engineers at Johnson Space Center's Mission Control Center, with assistance from the Huntsville Operations Support Center, at Marshall Space Flight Center, have decided not to move the parasol, which was rotated about 15 degraes after Tuesday morning's EVA. While it's not possible to determine what benefit the counterclockwise rotation made by Commander Conrad, from inside the workshop, had, Flight Controllers are confident that the changes had no adverse effect. Temperatures in the orbital workshop living area are now slightly above 30 degrees, with one of the censors reading as high as 84 degrees. This increase, amounting to several degrees over the past few days, is due to a change in the period of time the spacecraft spends in sunlight. Beginning today. June 21, the first day of summer in the northern hemisphere, the spacecraft will spend about 4 full days in sunlight. The last brief period in darkness entered into just before 11:00 a.m. central daylight time this morn-Because the movement of the Earth's exis, which now points the north pole closer to the Sun than any day in this past year - and this is of course a regular, not June 21st, the longest day in the northern hemisphere - the Skylab space station is able to remain in sunlight for a maximum time. This opportunity is repeated at December 21, the longest day and the beginning of summer in the southern hemisphere. But in addition, a slight variation in the circulating of the space scation's orit - This i. a variation that is inevitable and occurs with every spacecraft, no mutter how slight the variation - that slight variation now approximately 12 to 14 miles from the high point in the orbit to the low point in the orbit causes the spacecraft

to have an orbit that is that antly changing. The wrbit low point auto as a brate as the spacecraft comes down closer to the atmosphere where there is a slightly larger amount of material. It does break the orbit and changes its angle so that the orbit is constant. Although it is at a regular 50 degrees inclination from the equator, it does tend to move around the Earth with a 50 degree high point occurring at a different point each time it goes around the Earth. Because of this precession of the spackcraft orbit, there are high and low points within that band of the Earth's changing orbit. Very complex series of figures but at this time we've passed the 100 degree, 100 percent sunlight time. This is the only time during the orbit of the spacecraft in the next year that the spacecraft will be at this condition. This is for the reason that right now the spacecraft orbit and the Earth's orbit are both at such angles that we have 100 degrees sunlight, 100 percnet sunlight. Now that does have a temperature effect that is quite observable on the spacecraft. In addition to that, because long periods of sunlight, there are some temperature increase. So far it's been several degrees noticeable in the atmosphere of the spacecraft. After 4 days, we go back into a period where the orbital plane has now moved around again, and the spacecraft is no longer in 100 rescent sunlight. The low point in the sunlight period is approximately 61 to 62 percent, and that will appear several times during the mission. What this means of course is we have considerably more electrical power available than we normally do. But, at this point, since experimental work is pretty much completed. there is no use for that electrical power. We will again reach very high points later in the mission, 90 to 91 percent, but nothing as high as the 100 percent we'll be experiencing for the next 3 or 4 days. Temperature increases are not serious increases but they will make it a bit warmer than it has been in the past. And they do considerably interfere with determining the effect of that parasol rotation. The rotation was made to cover a hot spot in the orbital workshop near the water tank. So the rotation will stand as it is at approximately 15 degrees counterclockwise rotation. We don't believe there was any adverse effect, we're not confident that there was any positive effect. And for that reason they won't make any change to that now. It looks like a successful move, it certainly hasn't had any bad effects on the mission. This is Skylab Control. Our next acquisition of signal 51 minutes and 15 seconds from now. It is now 45 minutes and 55 seconds after the hour.

SL-11 M01520/1 PM PA Time: 12134 CBT, 28:17:34 CHT 6/21/73

FAO Skylab Control at 17 hours 34 minut and I seconds Greenwich ween time. The present time we're I minutem from acquisition of signal at the Hawaiian Island tracking station. And we have some additional information now on the urine separator problem that we had a few moments ago that was reported earlier in the pass and we now have some - a report here from Mission Control. Story Musgrave, one of Skylah's backup team of astronauts, has completed his work in the trainers here at Johnson Space Center on the problem of dumping those three urine separators. said that wrapping the separators with the towels, which was suggested by the crew over Vanguard about an hour ago, would infact aggrivate the problem of putting them through the trash airlock. He found that the urine separators which separate drops of urine from the air in the space station's three urine containers would be no less likely to be caught in the trash airlock if wrapped in towels and would be more difficult to free once they became caught. Musgrave said that two planticized pieces of paper could be taped to cover the protruding edges of the urine separator, which is a metal disc shout I foot in diameter, and three or four inches thick. The urine separator however, has several irregularly shaped edges and pieces of metal attached to it. After a review \odot) the suggested procedure in which Musgrave said that $n\sigma$ one could have designed a piece of metal more likely to hang up in the sirlock, Flight Director Neil Hutchingsa consulted with life scientists on the safety of an alternative procedure. for chinson, with agreement from the flight operations management room - and we have acquisition of signal at Hawaii, and we'll stay live for air-to-ground and complete this afterwards.

Skylab, Houston; through Hawaii for 6-1/2

elnutes.

SC lello.

CDR Say, Houston, CDR.

CC Go ahead.

One thing that we couldn't find was the sample return bags for the OWS water and we have put a sample in a in suit drinking device, which will be in L3 vice the sample bag. And it is so marked - you want to tell the noilection people that on the ship?

Okay, wilco. And - we looked at this urine separator problem and - and it looks like that's a pretty dangerous thing to do is to try to dump it. Not dangerous, but it jould jam the airlock very easily. So what we're going to recommend is that you take the three separators and put them in the TO27 sample array box. Make sure the lid's on plenty right and went down and then we'll forget about it.

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detake about 15 minutes probably to pull it down.
Okay, I told you it didn't held the
Vacuum and I just checked that and pulled another vacuum on
its I m going to see whether it holds it of not. It did
not held it the other day when I put TO27 back in.
   CC
                     Okay, we're not really concerned about
that. If we went it down one time, then the in-flow of the
air is into the thing, and I guess we don't worry about that.
      CDR
                     Okay, that's where we'll put them.
      CC
                     And one other thing, Pete.
                                                We been watching
              The comperature is still sneaking up on it,
this Oued A.
and we're running about 3 or 4 degrees below the trip point.
So rather than having that thing wake you up tonight, we'd
like to have you inhibit the 5 Bravo there on panel 201 (garble)
      CDR
                     Okay, 5 Bravo.
      CC
                                      If it's convenient,
                     Skylab, Rouston.
could you tell us where you are on the checklist?
                     Well, the SPT is complete for tonight
because the urine separators are all changed out, and I'm
helping the other guys who helped me catch up.
                     Yeah, we're closing out the wardroom,
we're just getting ready to shutdown the water system.
                     Roger. Copy.
      CDR
                     I'm actually on page 1-44, step 3.
our next station, Hank?
      CC
                     What was your question again, Pete?
      CDR
                     Next station.
      CC
                     Okay, the next station will be Vanguard
again at - at 08, and we got a recorder dump there.
we're about a minute from LOS.
      CDR
                     Okay, well I'll have the food for you.
      CC
                     Okay.
      CDR
                     Also, you sent us a message about transferring
some film, and there was one film number that was wrong on
there. CI19 is one of the films that we were going to shoot
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up. So the film that we transfered from drawer A to drawer F, as I remember, was 21 - CI21 through CI24.

Copy.

Roger.

11634 CDT 28117134 CRT 7

FND OF TAPE

CC

SL-11 NG+1321/1 Time: 12:44 CDT, 28:17:44 CHT 6/21/73

Skylab Coutrol at 17 hours 44 minutes 7.00 and 23 seconds Greenwich mean time. We have long signal et Bevail, and vill next equite in 23 minutes and 14 seconds at Vanguard. During this last pass the procedure to be used by the crew in disposing of those urine separators was sent up by spacecraft communicator Henry Hartsfield. As I was saying earlier, there was a procedure suggested to them for disposing of the urine separator, which it is felt might have hung up rather easily in the trash airlock. That procedure that was suggested by Story Musgrave is to wrap them in plasticized sheets of paper. These are papers that might for example contain subsequent instructions that no longer are to be used by the crew. Those plasicized sheets of paper would be wrapped around the urine separator and then it would go through rather easily. Surprisingly enough the urine separator doesn't look like it would hang up in the trash airlock at all. It is quite a bit smaller than the airlock, but it does have those sharp protruding edges, and those edges can catch very easily on parts of the airlock. And that is the danger. After a review of that suggested procedure, flight director Hutchinson consulted with life scientists on the safety of an alcernate procedure. inson with agreement from flight operations management room and Marshall Space Flight Center engineers said that the 3 separators should be placed in the T027 sample array container. The sample array container is no longer necessary for the ATh contamination experiment T027. This procedure. despita a slight leak in the strong vacuum that that container box has, is considered a far safer method of disposing of the separators. The box has room for about 6 separators, which is enough for this and the next Skylab manned mission. For the third mission, final Skylab mission. Or course it would not be necessary to dispose of the urine separators since the spacecraft will no longer be in use. While the separators are completely safe and out of the way in the TO27 box, mission controllers felt that a slight chance that one of the separators might become wedged in the trash airlock was an unecessary risk to future missions. The trash airlock is a very important part of the operations of the workshop. And for a 56 day mission, it Jould be virtually essential that they keep that opening clear. would present some real problems if it were closed up. would be possible to depressurize the workshop and to open it up and do a intravehicular activity, an IVA, to solve the problem if it should become jammed, but that was considered an unnecessary risk, the TO27 box will be used instead. Late

8L-11 MC=[321/2" Time: 12:44 CDT, 28:17944 CMT 6/21/73

in this pass over Havaii, the crew informed mission Control that the film transfer from drawer A to drawer P had to be modified slightly because they had been instructed to transfer a piece of film, this is unexposed film that they had intended to use. The film transfer from drawer A to drawer P is in order to offer better protection . on radiation. was some concern that because of the radiation in space that that film might become exposed in drawer A than in drawer F. Both of them are considered safe, but drawer F is the safer of the two. So they did make that film transfer. now considering a possibility of maybe doing further wrapning of the T027 - the urine separators - before they go into T027. While Story Musgrave was in Mission Control, he also brought over the MOL SIEVE canister that nearly caused this jam up in trash airlock earlier today. The reason that happened as we discovered here in Mission Control is that with the canister and several towels and the large EVA gloves, that bag was very very nearly as full as it could be. And because of that it was surprising really that it went through. was an overpacked bag, and apparently that is something will be given consideration between now and the next Skylab mission. The bag should probably not have had as nearly as much material in it as it did, and I'm sure that the EVA gloves at least will be left out in the future times. The canister is a very large object, about a foot and a half long and something over a foot in diameter. But, the crash airlock problem now is essentially solved. They did finally succeed in getring that has through earlier today and the urine separators are now to be placed in the TO27 container which is a vacuum chamber. And whether or not there is a vacuum really has very little to do with the safety of the box. It is a sealed container and it is unlikely that any leakage would occur out of the box. there, of course, would be no danger from that any way. There was some concern on the part of the flight director that there might be some microbiological problem but the medical officer informed us that there was no danger at all. That urine is sterile and that for that reason there is very little risk in fact no risk at all in his opinion. So that problem has now been solved and the crew is doing their best to get along towards They indicate that the Science Pilot Joseph Kerwin had completed all of his activities for the day. And they expect within probably something earlier than they had originally scheduled - they were originally scheduled to go to bed something over an hour and a half from now at 2:30 p.m. certral daylight time. It now appears that they may get to bed something earlier than that, although we don't have an exact

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50-11:80-131/3 Eise: 12:44 CBT 26:17:44 Ex 6/21/73

time yet, The crew will wake up tonight at 7:30 p.m. and begin preparetions for the eplashdown to occur semorrow morning at 8:50 p.m. central daylight time, 8:30 miles southwest of San Diego, California. This is Skylab Control at 50 minutes and 13 minutes after the hour.

END OF TAPE

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AL-17:0(0=142) [17 (1me / 623:05.781, 20:14:05 GHT

Figlab Control at 18 hours 3 minutes and a second section of the propert time of the about a minute and 30 seconds from acquisition of signal at Vanguard. 13d we should hear from the crew again, to find out what's happened now with the urine separators that they were to dispose of in the TO27 canister - TO27 Container. The flight director indicates that he will be available for a press conference shortly after this pass. We're sorry for the short announcement; that means approximately 15 minutes from now. He would like to try and get in for a press conference, since he has to be back on duty again in about 6 hours, he's requested that we make that press conference as short as possible. This is Skylab Control. We'll remain live for air-to-ground from Vanguard. And a reminder; that press conference should begin in approximately 15 minutes in the building I small briefing room, with off-going Flight Director Neil Hutchinson. We're alive for air-toground.

CC Skylab, Houston; through Vanguard 9-1/? minutes.

Roger.

SC

SC

SC

Give you the evening status report now. Are you ready for the day-172 close

out numbers?

CC Go ahead. I think we've got everybody up now, Pete.

Ona,. The Alpha for the CDR was, 045, the SPT was 040, for the PLT was 030. Bravo was 4478 for the CDR. The SPT was 7315, and the PLT was 5459. I believe we reported Charlie this morning. We've rm irted Delta, also, to you today and Echo. And let me get over to the food. Okay. The PLT, who didn't have any Delta reported, had 2/15/2000. And the food war, as follows: CDR ste everything plus 2 butter cookies. And at lunch time today we made the substitution that we told you we were going to make on B-Channel on day 22. I hope everybody was aware of that one. We never heard anything. So we went shead and did it. I had 10 optional salts. And the SPT - he ate everything, and he also did not - He did make the substitution that I just mentioned for lunch. And he did not have any coffee, was sugar for snacks, and he had 7 optional salts. PLT are all his breaklast. He are all his nunch with the substitution, as mentioned, no corn, no bread, and no coffee with sugar. He had 1.5 extra water and 5.0 opticzal salt. And he wants to talk to you.

PLT Cn this wardroom water drain, I notice our waste tank pressure's getting kind of high, I'm suppose

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SL-II MC-1322/2 Time: 13:05 CDT, 28:18:05 GMT 6/21/73

to switch to the chiller now. Do you want me to go shead and switch? Secause there's a caution under procedures; it infers you don't want any of it to flow, once it starts.

CC Stand by, one.

CC Okay. That's correct, Paul. Press

ahead. Don't interrupt the flow.

PLT Okay.

CDR Okay. The CDR is going to have 2 cans

of butter cookies tonight.

CC Roger, Copy.

CDR Did you get those scheduled photos (garble)

the way I left them with Mr. Truly? And that's it.

81-11 MC-1323/3 11mo: 13:12 CD2 28:18:12 CHT 6/21/73

CDR Rey, Hank, are you there?

CC Roger, we've got a couple of minutes

oft.

beishor the point, but I've had the vacuum hose on it for a half an hour, and I went up, builled the hose off, and opened the lid. That's how poor the vacuum is. Now, the valve is going to stay open, the (garble) valve is going to stay open. Do you want me to leave the vacuum hose connected to TO27 for good? They can unconnect it when they get up here and maybe they will have some way to throw those things through the trash (garble) sirlock and then give it up.

CC That's negative. We don't want to leave the hose connected.

it in there, I can tell you that, because that thing has got no vacuum whatsoever. I mean I can't even pull the vecuum long enough to hold the lid shut. I'd rather (garble) around with the (garble) and put them out the trash airlock I believe we could do it. Think it over and tell me at the next station.

CC Okay. Can you tell if you are getting any flow at all out through the hose while you've got it hooked up?

CDR You bet your sweet bippy. I put the hose just to check that too. I put the hose on the lid with .t open, and I can - it's just sucking away merrily right through the vacuum port where it is supposed to. It's called a vacuum, but I don't know why the lid doesn't - for some reason it doesn't hold. (garble) It had the vacuum in it when we came up here.

GC We're about 30 seconds from LOS. Ascension is coming up at 23, and that will be your med conference.

Skylab Control at 18 hours 17 minutes and 54 seconds Greenwich mean time. We have now lost signal at the Vanguard tracking ship. And as we cross .'.e south Atlantic towards Ascension, there are plans underway to begin the private medical conference. That's the daily private medical conference to report the status of the crew health. And we expect that will be taking place at Ascension. That had been scheduled earlier for Vanguard, but they did make a modification because they wanted to clear out the status of crew activities this morning. So there will be a private medical conference at Ascension. We will come up about a minute before and announce that we're live a. Ascension, but we do not expect any sort of discussion until later in that pass. It is a 7-1/2 minute pass, and we should have some time returned to us from the medical officer for live air to ground from here. This is Skylab Control at 18 minutes and 49 seconds after to hour.

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**SL-11 NC1924/1 Time: 13:22 CDT, 28:18:22 GMT 6/21/73

Skylab Control at 18 house 21 minutes and 51 seconds Greenwich mean time. The present time the spacecraft is I minute and 20 seconds from acquisition of signal at Ascension. The Ascension pass is reserved for a private medical conference held daily with the crew to discuss the present state of their health. We do expect that when the doctor has completed his private conference we will have a live air-to-ground from Ascension. Just a few moments ago we were informed by the crew that they were having difficulty drawing a vacuum on that - that they had been having difficulty drawing a vacuum on the TO27 box that will be used to store the urine separators they took out of the urine containers earlier today. After a review of that and a discussion with Surgeon John Zeiglschmid Dr. _eiglschmid indicated that there was no danger from contamination or from bacteria in that area and for that reason whether or not they have a vacuum makes no difference. informed of that no doubt, at the end of the Ascension pass provided there is time. Plight Director, Neil Hutchinson, now off duty, is on his way to the building I briefing room for a short press conference. Because the flight director does have to be back tonight at 8 o'clock. He goes on shift at 9 tonight and will be on for a 12 hour overnight shift until after splashdown in the morning. We would like to ask that that press conference be as brief as possible. is Skylab Control. We'll remain live in the event that the private medical conference is brief for any air-to-ground from Ascension.

CC Skylab, Houston. We got about another 5-1/2 minutes through Ascension.

CDR Roger.

Okay, you might pass on - I assume that the descrivation of the water system for SL-III is pretty much the same as ours. These numbers aren't working out too well. I'm sure you guys saw there what the waste tank pressures got up to. Plus I been waiting at least 3 minutes for the dump pressure to get down and right now it's reading just a tad over 1. I'm still waiting for it to get below 0.7.

CC Roger. Copy.

CC CDR, Houston. In regard to the TO27 container, we're not concerned about the first that it won't hold the vacuum. We want you to put the separators in there and batten down the hatch and forget about it.

SC All right.

SC It's Al's worry, not mine, Hank.

CC PLT, Houston. EGIL says we ought to

81-11 MC1314/2 Time: 13:22-CDT, 28:18:22 CMT 6/21/73

Tress about, we can go of the time. Jest go & minutes and Let that do it.

PLT I didn't get that, Bank.

CC Roger, we'll follow the times in the checklist going to 6 minutes. That's for the PLT.

PLT Okay.

PAO This is Skylab Control. We are much prepared to have - begin a briefing in the Building I small briefing room and we have taken down the line and will record the remainder of the Ascension pass. This is Skylab Control at 28 minut 3s and 50 seconds after the hour.

BL-11 MC-132571 Time: 13:46 CDT, 28:18:46 CHT 6/21/7378/88

skylab Control at 18 hours 46 minutes and 28 seconds Greenwich mean time. We will now play the conclusion of that Ascension pass that we recorded because of the briefing going on in building 1. This is the final air-to-ground from Ascencion. Our next acquisition of signal, about 20 minutes away. Here's the replay of that air-to-ground from Ascension.

CC Skylab, Houston. We're about 1 minute from LOS, Guam at 07.

PLT Roger, Houston. And the CDR has managed to get some vacuum in TO27.

CC Roger.

CDR Got the same old problem, Hank. Loose nut on the stick, the CDR.

CC Roger. Copy.

SPT You should see the other set of clamps on the head side.

CC (Laughter). Roger.

PAO Skylab Control at 18 hours 47 minutes and 32 records. That concludes the air-to-ground from Ascension. During that last brief interchange they indicated that they had successfully gotten some vacuum on that TO27 can - T027 canister, the container being used to hold the urine separators from the - the urine separators was found out - It was found out earlier, that the urine separators were not going to go through the trash airlock as easily as they had previously inticipated and for that reason, they decided to put them in the TO27 canister. They do now, have a successful vacuum on that. And that's a good report, although, there wasn't any emergency - there was no danger of any problem, because of no - Because of the lack of vacuum, they are pleased to know that they do have a vacuum on that, as an additional precaution. This is Skylab Control. Our next acquisition 18 minutes and 43 seconds from not. It is now 48 minutes and 24 seconds after the hour.

Skylab Control at 19 hours 5 minutes.

And 14 seconds Greenwich mean time. We're approaching addition of signal at the Hawaiian Islands - I'm corry at the Guam tracking station. We should have acquisition there at - in 1 minute and 38 seconds. This is Skylab Control. We'll remain live for air-to-ground from Guam.

CC Skylab, this is Houston on the last AOS of the day, standing by for 6 minutes.

CDR Hello, Houston. What time is it down there anyway?

CC The local time is 2 o'clock in the afternoon.
SPT Goodness gracious. Well, we're going

to bed.

CC Sounds like a fine idea.

SPT I shouldn't have asked, the PLT was getting sleepy and now he's wide awake again.

CC Sorry about that.

SPT So I'm going to play him some southing music. Neither country and western, nor classical nor Up With People, something everybody can get along with.

CC Beautiful. Beautiful.

SC (Music: "My Country tis of Thee")

CDR Hey Carl, where are we?

CC Stylab, Flight sends his compliments about your selection of music and we're currently over Guan.

CDR Over Guam, okay.

first of all, we'd like confirmation that you've proceeded the rest of the way through the waste - the waste management water procedure. Also like to confirm that you took the TO27 rods out of the box before you put the urine separators in.

CDR No, nobody said to take the rule out. Want the rod out? I'll take the rod out.

CC Okay, that's no big deal. We'll take it as it is, just a point of information.

CDR Okay.

PLT Tes, the water system deactivation is complete.

CC Roger, and thenk you.

CC Skylab, Houston. We have 40 seconds to LOS and we'll see you early tomorrow morning on splashdown day.

CDR Okay, Houston, and be advised that I'm going to take transporter 03, which has supply CIIS and take up CII7 and stow it in the back of Fdrawer. It's one of the (garble) we were going to use. We don't have anything to

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use it on and it is faily leaded and I'm jus going to put it sway in 7 drawer too him. L. CC. Roger, Peter We copy.

Roger, Pete. We copy.

CC

Roger. And Skylab, a question is coming through here. Just for reference, can you tell us where you put the bag with the 5019 film canister?

MCC Yes, sir the CAP CON has it.

CDR Which S019? The good one or the bad one?

CC It's the bad one.

CDR The bad one'r in a plenum bag.

CC Roger. We copy.

CDR And it's tied under TO27 on the forward

experiments compartment area by the sunny SAL.

CC Roger. We copy, and thank you.
CDL Going to use it for something?

CC Say again.

CDR Going to use it for something?

CC There's a possibility that there might be spare parts in the battery that could be useful later.

CDR Okay.

25 seconds Greenwich mean time. We have lost signal at Gual. This will be the last pass of the workday for the crew. They indicated that they are ready to go to sleep. They will be getting up early tomorrow morning by their definition, but 7:30 p.m. Central daylight time, about a little over 5 hours from now. A very short sleep period for the crew. And they have to get up that early -

31-11-MO-132-/1 Times 14:14 CDT, 78:19:14 GHT 6/21/73

PAO central daylight time, about little over 5 hours from now, a very short sleep period ... for the crew. They have to get up that early to begin the closeout of the orbital workshop area. And then they pass through the hatch of the MPA, lock that, go to the command module and begin their return home. That schedule of events ah - all ready been released. There haven't been any changes so far from our details on retrofirer and other events. do expect the splashdown to occur approximately 8:50 a.m. central daylight time tomorrow, 635 miles southwest of San Diego, California. And the USS Ticonderoga Aircraft Carrier is on station there now, preparing for that spl_shdown. So beginning at 7:30 this evening, when the crew awakens, we'll have the procedure for closeout. The time for splashdown, 8:50 tomorrow morning. This is Skylab Control, 15 minutes and 44 seconds after the hour.

\$1-II MC-1328/1 Time: 14:47 CDT, 28:19:47 GHT 6/21/73

Skylab Control at 19 hours 46 minutes ind 51 seconds Greenwich mean time. We have now acquired signal over Vanguard Tracking Station. We do not expect to hear from the crew during this pass, and we are recording the air to ground. In the event that anything does happen at Vanguard, we will bring that up later. We have received a daily medical report from Dr. Willard Hawkins. He reports that at 13:20 hours local, that's during the Ascension pass something over an hour ago, the crew were ready to bed Their health is good, they have no medical problems that concern us regarding entry tomorrow morning. be wearing the counter measure garments unpressurized during entry as programed. That's signed by Dr. Willard Hawkins, the Flight Surgeon. To repeat that message, the health of the crew is good. They have no medical problems that concern us regarding entry tomorrow morning. They will be wearing the counter measure garments unpressurized during entry as programed. After awakening the crew has now gone to sleep. Our last pass over Guam they reported that they were on their way to bed. And we do expect them to be sleeping now. They went to bed about 2:15 p.m. central daylight time today. awakening at 7:30 p.m. central daylight time this evening, the crew will begin activating the command module, a procedure that requires nearly 3 hours, and is to be completed shortly before midnight tonight Houston time. In the following hour, the crew will don their suits and complete the closeout activities in the space station, before 2:00 a.m. By 2:00 a.m. the crew begins final preparations for disconnecting the command module from the Skylab cluster. Final calculations now underway for the command module maneuvers required for tomorrow morning's splashdown, indicate that no change will be made in the times for those events. The command module is scheduled to undock at exactly 3:45 a.m. central daylight time with the space station over the north Pacific about 1200 miles north of Hawaii. Separation from the workshop cluster using the smell reaction control system jets for 23 seconds begining at 4:40 a.m. central daylight time follows. The separation burn will slow the command module 5 feet per second or about 3 miles per hour moving it behind the space After it has completed its fly around. command module slows, it will move into a lower orbit and pass beneath the Skylab cluster. The separation takes place over the Indian Ocean some 2,000 miles due south of the Island of Madagascar. Following separation at 5:05:30 a.m. CDT, Friday the main engine or service propulsion system will be fired for 10 seconds to slow the spacecraft an udditional 264 feet per second or about 180 miles per hour, putting it

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in an orbit 233.6 newtical miles at its high point and 90.78 nautical miles at its low point. That is to say the high point in the altitude of the command module's orbit will be about 269 statute miles, and its low point 104 statute miles. This orbit-shaping maneuver will be conducted over the Philippine Sea, 600 miles east of the island of Mindanao. The final burn or retrofire which requires a 7 second burn of the main engine slows the command module another 190 feet per second or 130 miles per hour. will be made at 8:10:43 a.m. central daylight time over the northernmost area of Thailand. The spacecraft will take more than 23 minutes to reach the 400,000 foot mark, and that occurs just minutes before splashdown. Splashdown is scheduled to occur \$30 miles southwest of San Diego. It will occur near the USS Ticonderoga, an aircraft carrier that is presently stationed there. Splashdown is at 8:49 and 57 seconds a.m. central daylight time, 830 miles southwest of San Diego. This is Skylab Control with a final message until, after 7:30 this evening. We do want to report that there will be a briefing that will be held on our release lines - An AIAA briefing held on the practical uses of Skylab's electronics technology. These are practical commercial applications already underway that have been made from technology developed for the Skylab program. That will begin at 3:00 p.m. central daylight time, and will be carried on the release lines. It is in the small briefing room at NASA Johnson Space Center. This is Skylab Control at 51 minutes and 53 seconds after the hour signing off until 7:30.

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Skyleb Control at 46 minutes and 55 meanands ofter 8 hour Greet with mean time. At the present time we are a minute and 50 seconds from acquisition of signal at our Mile tracking station at Merritt Teland, Ploride, and we expect the crew to be wide awake already. They are believed to have set their alarm clocks for 7:30 p. m. central daylight time wakeup, but there will be a callup from Spacecraft Communicator Karl Henize and the maroon team of flight controllers. This is Skyleb Control. We'll remain live for air-to-ground from Merritt Island, Piorida.

PAO Skyleb Control, we have acquisition of aignal at Merritt Island.

CC Good morning, gentlemen. Welcome to trission day 29, the last day of a very successful Skylab

CDR Good morning, Karl. Everybody's up and at 'em. We're (garble)

CC Very good. We'll be with you for 12 minutes through Mila and Bermuda.

SPT It's wonderful of you to pretend it's morning just for us.

CC Down here in Mission Control, it's hard to tell the difference. Imagination does everything. Incidently, be assured that we has scoured all of Houston for an appropriate wakeup song. wanted it to be Rubber Duckie, and weren't able to find it. Sorry about that.

CDR (Laughter)

CC And, Skylab, you have four burn pade on board. 2901, 02, 03, and 04. We'd like for you so confirm that they're on board and ok:y.

SPT We got them and preliminary glances - it

looks like they came through good, Karl.

CC Very good; thank you.

CDR You really mean three burns and an

entry pad, don't you?

CC Okny, I'll Roger that.

CDR You can tell that big man I heard say Yes" in the background hello.

MCC He said Roger that.

CC He says thanks and hello back.

CLR Say, Houston; CDR. Would you pass to me one more time the approximate time you wanted to move the RCS hot fire? Do you want to get it in Guam, or do you want to get it in Carnarvon instead of Guam, or something? I got it in my book, but I just want to stick it in my mind.

CC Stand by.

PAG Skylab Control; we have a temporary

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interreption if termunications from our site at Merritt

Roger, Pete. We'd like to do that over Carnarvon instead of Guam.

CC Rogar, Peto. The time we have down here is 15:05. 15:05 PRT.

CDR Thank you, sir.

CC Skylab, Youston. We'd like to conditm that you have the undocking procedures on board. And we're referring to two messages. One is 2317, and this in turn refers you to message 0105. Are both of those available to you?

CDR Wait?. I think you're referring to the one - the first one you're referring to, I put in the checklist, in the fourth section, if I'm not mistaken. Let me look for the other one.

CDR Okay. Here's the number on the - I got a 0620A and 0315, and that was the real old one. And then I out one in the procedures book - the CSM procedures book. That's the only three I know about.

CC Roger. Is the one in the procedures book - it said to put it on the back of page 5-11. Could you confirm that?

CDR That I can confirm.

CC That's in the Systems Checklist. You do have that one on board?

CDR That's Charlie. It's in the ermand module right now.

Okay, Pete, and the other mossage was the undocking message that went up on day 1 and is at 1) important. We think that that was placed in the count is module. Do you have any reference to it? That's OAC.

CDR J105, no I - pass my memory on rist one. Would it have been a message that we put in he statems book?

CC Okay. It sounds like that. We'll put that on the teleprinter for you.

CDR Very good.